

# ENTOMOLOGICAL NEWS

AND

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## Some Species of Leptagrion with Descriptions of a new Genus and a new Species (Odonata).

By E. B. WILLIAMSON, Bluffton, Indiana.

(Plates XVII, XVIII.)

Foerster, in *Neotropische Libellen III* (Insekten Börse, XXIII, 1906), describes two new Neotropical Agrionine genera. One of these, *Skiallagma*, type *baueri* n. sp., known only from the male, is stated to be closely related to *Enallagma*, a view with which I can hardly agree, since against the *Enallagma*-like character of the quadrangle (which is not at all characteristic, by the way, being a common form of quadrangle) one can set at once the absence of postocular spots and the origin of A at the cubito-anal crossvein. Calvert (Ann. Carn. Mus. VI, p. 176) describes a second species, basing his generic determination, so he writes me, on the fact that his species seems to be close to *baueri*.

The second new genus proposed by Foerster is *Hylaeagrion*, of which *Leptagrion croceum*, of his determination must be the type, congeneric with which, according to Foerster, is his new *H. argenteolineatum*, known from the male only. The

new genus is separated, by Foerster, from *Leptagrion* by the presence of a vulvar spine in the female, by the unequal teeth of the tarsal claws, and by the form of the superior appendages of the male. But it seems impossible, after comparing Foerster's description of the male appendages of *croceum* with figures 15 and 16 of this paper, that his determination of *croceum* is correct. In fact I am convinced he had a *Leptobasis*, probably *vacillans* before him. As to his new species, *H. argenteolineatum*, I have no doubt this is really *Leptagrion dorsale*, a species in which the vulvar spine is wanting in the female. In *Leptobasis* the vulvar spine is normally present. It is true Calvert (Ann. Carn. Mus., VI, p. 201) describes a new *Leptobasis*, *mammilaris*, in which the single female lacks this spine. But Calvert's specimen was associated with the males only on supposition, and a female in my collection, which I think is a true *Leptobasis mammilaris*, is different and has the spine well developed.

The type of *Leptagrion* is *macrurum* Burmeister. Among the species associated under *Leptagrion* by de Selys it is proposed to recognize and describe a second genus **Aeolagrion**, type *Agrior dorsale* Burmeister. These two genera may be separated by the following key:

a<sup>1</sup>. Descending crossvein from the subnodus not continued directly to the wing margin, the marginal cell, against which it ends, high and pentagonal, the adjoining marginal cells high and the hind margin of the wing full and rounded, nearly paralleling the front margin; M<sub>2</sub> in front wing arising at the sixth postnodal or more distad, in the hind wing at the fifth or more distad; R<sub>s</sub> and M<sub>3</sub> widely separated at the proximal crossvein between them; tooth on tarsal claw large, almost equalling the claw; male inferior appendages rudimentary.

*Leptagrion*.

a<sup>2</sup>. Descending crossvein from the subnodus continuous to the wing margin, the marginal cells on either side of it low and quadrangular, the wing spatulate, the hind margin not paralleling the front margin; R<sub>s</sub> and M<sub>3</sub> narrowly separated at the proximal crossvein between them; tooth on tarsal claw well developed but distinctly shorter than claw; male inferior appendages well developed.

**Aeolagrion**. n. gen.

b<sup>1</sup>. M<sub>2</sub> in front wing arising at the seventh postnodal, in the hind

- wing at the sixth; A in front wing arising proximal to the cubito-anal crossvein\*; cubito-anal crossvein in front wing distal to first antenodal nearly or slightly more than one-half the second antenodal costal space†, in hind wing more than one-half to nearly two-thirds ..... *A. flammeum*.
- b<sup>2</sup>. M<sub>2</sub> in front wing arising at the fifth postnodal, in the hind wing at the fourth; A in front wing arising at or distal to the cubito-anal crossvein; cubito-anal crossvein in front wing distal to first antenodal from one-fourth to one-third the second antenodal costal space, in hind wing less than one-half.

Other species of *Aeolagrion*.

Of *Leptagrion* I have 2 males each of *macrurum* and *andromache*. On the basis of description and figures only, *elongatum*, *porrectum* and *dispar* are also referred to the same genus. I know both sexes of *flammeum* and both sexes of *dorsale* and *demararum* n. sp. On the basis of descriptions only, it is probable *inca* and *obsoletum* belong here. I have no idea in what genus or genera the following species should be placed: *croceum*, *inornatum* and *rufum*.

An examination of the venational characters tabulated later in this paper will show a great deal of variation in relative lengths of the sides of the quadrangle. For example, in the front wing the anterior side may vary in the same species from about one-half the length of the proximal side to longer than the proximal side. Hence characters of the quadrangle based on single specimens are valueless.

The teeth on the tarsal claws seem to offer characters of value but are difficult of clear definition. Several species were studied in a comparative way and the following brief notes made: *macrurum*, tooth large, almost equalling claw‡.

\*The editor calls my attention to the fact that fig. 20, pl. xviii, shows A at the crossvein. A reexamination of the wings themselves shows that A is really proximal to the crossvein.

†The space between the antenodals.

‡Of the two males studied, 3 of the 4 hind tarsi are malformed (?); these 3 tarsi are shortened, apparently 2-jointed, and terminated by a single greatly enlarged claw, with a nearly equal inferior tooth. Since this footnote was written Doctor Calvert has called my attention to Child and Young's *Regeneration of the Appendages in Nymphs of the Agrionidae* (Archiv f. Entwicklungsmechanik d. Organismen xv, 103, pp. 543-602, pls. xx-xxi), and he adds: "The cases to which your footnote refers are probably regenerated tarsi." Child and Young's paper is not in my library and I am unable to obtain a copy at this time.

*andromache*, similar to *macrurum*; *flammeum*, tooth well developed but distinctly shorter than claw, both tooth and tip of claw slenderer than in the preceding two species, the tooth not so divergent, the included angle more acute; *dorsale*, similar to *flammeum*; *demararum*, short as in *flammeum*, otherwise more like *macrurum*; *Leptobasis mammilaris* has the tooth still shorter, that is more basal, and weaker; in *Leptobasis vacillans* it is smaller than in *mammilaris*.

A study of the spines on the legs of various species shows a surprising variation in the number of spines and their distribution or spacing in each species, and no characters of specific or generic value have been detected. The closer spines are set together the longer they appear, other things being equal, since one estimates their length largely in terms of the interspaces.

***Aeolagrion demararum* n. sp.** (Pl. XVIII, fig. 22, text figs. 17, 18).

Abdomen ♂ 27-28, ♀ 27-30; hind wing, ♂ 16-17, ♀ 17.5-18.5.

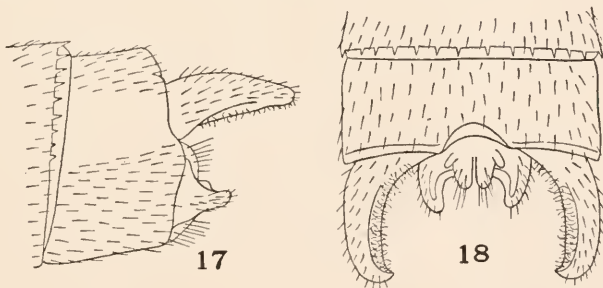
♂.—Labrum to median ocellus, including genae, light dull brown to bright blue green, with all intermediate stages, in specimens otherwise apparently of the same age, the green in transitional specimens appears first on labrum, rhinarium and nasus, and last on the frons above. Head above dark green to black, marked with dull orange in a varying degree; area enclosed by ocelli dark; from this dark area, posterior to the lateral ocelli, on either side a dark bar runs outward and forward, ending behind the antenna and reaching neither the antenna nor the eye; anterior to this bar the head is pale except that usually there is a short bar on either side of the median ocellus, reaching about half-way to the antenna; at its outer posterior portion the dark bar from each lateral ocellus joins with a large dark area which occupies the entire posterior dorsal surface of the head except a pale occipital crest with a dilatation of varying size at either end; in some specimens this pale occipital area is blue or green instead of dull orange. Usually the large posterior dark area rests against the eye, but it may be separated by the merest line of pale blue or green. In a few very mature specimens, as shown by the pruinulent under parts of the thorax, the occipital pale area is scarcely or not discernible, and the pale areas on either side and in front of the ocelli are very dark and obscure, so that, at first glance, the entire dorsal surface of the head, excepting the frons, appears black. Rear of head pale, white or bluish.

Prothorax with front lobe pale blue, the lateral margins light brown, to entirely bright blue; in paler individuals the middle and hind lobes

light brown with obscure darker shadings; in brighter individuals these lobes are rich reddish brown above, with a median longitudinal pale blue shading, and the sides blue; hind border wide, with round lateral wings and a rounded median border of the same height. Propleuron pale, almost white to bright blue.

Thorax above very variable; in all a dark metallic green middorsal stripe, on either side about one-fifth as wide as the mesepisternum, with the sides parallel, except at the extreme upper and lower ends; remainder of mesepisternum rust red and very variable; in some the color seems fairly uniform over the entire surface, but in most specimens there is a faint hint to a rather definite pale stripe on either side of the median dark green, and of about the same width; this stripe may show as a lighter rust red or parts of it may be greenish or bluish; in life in bright-colored individuals I recall it as an evanescent bright light blue stripe. Sides from the humeral suture light to bright blue; the mesepimeron usually slightly paler than the metepisternum and metepimeron, with a narrow posthumeral darker blue stripe; a small brown dot slightly above the middle of the first lateral suture and another near the upper end of the second lateral suture. In the case of a few very mature specimens the rust red of the mesepisternum has become almost or quite as dark as the middorsal stripe, in which case the pale stripe on either side of the dark middorsal stripe is distinct and well defined, rusty silvery white in color, the mesepimeron largely overlaid with silvery white, and the under parts and coxae with scattered powdery pruinescence. Coxae and beneath pale, cream or bluish.

Abdomen seen from above, 1 blue with a median brown spot which is usually pale centered; 2 blue with a wide longitudinal median brown, more or less black stripe, which is slightly widened basally and apically, not reaching the base which is pale, and usually slightly separated from the narrowly brown apex; 3 to 6 brown, shading



*Aeolagryon demerarum* n. sp.—Left lateral and dorsal views of apex of male abdomen. Drawings by C. H. Kennedy.

apically on each segment into black which occupies one-fifth to one-sixth of each segment, narrow, medianly interrupted basal blue rings; 7 black, narrow, medianly interrupted basal and subapical pale rings; 8 and 9 bright sky blue; 10 black, more or less pale yellow or bluish near the middle on either side of the median line. In a few very adult specimens 6 is like 7 and the dorsal brown of the preceding segments is much darker than in the larger number of specimens. Seen from the side, 1 and 2 blue with a narrow brown posterior border; 3 to 6 greenish, extreme lower border and over a wider area subapically, bright yellow, more or less obscured and indefinite in most of the dried material; 7 indistinct, apparently blue below the black dorsum; 8 and 9 blue; 10 with lower half blue, in some with the inferior apex yellow. Superior appendages black; inferiors yellow to black. Ventral suture black, paler and duller on the last three or four segments.

Legs light yellow, femora bluish or greenish tinged in some specimens; femora, especially the last 2 pairs, with a more or less distinct narrow dark line on the external angle.

Wings clear; stigma light brown to brown, encircled inside the enclosing veins with a narrow pale margin, covering one cell or slightly less, the inner side slightly more oblique than the outer, with a brace vein, the anterior and posterior sides longer than the other two sides.

♀.—Labrum light yellowish brown; rhinarium similar or darker or with greenish traces; nasus, frons and genae bright yellowish brown to obscure green. Head above as in the male, averaging paler, no trace of the dark bar on either side of the median ocellus, the pale dilations on either end of the pale occipital crest larger and always dull orange. Rear of head cream-colored.

Prothorax variable as in the male, but the middle and hind lobes always brown, unmarked. Posterior border of hind lobe winged as in the male, but the middle lobe of the border is lower, apex truncated and sometimes slightly concave. Propleuron cream to light blue.

Dorsum of thorax similar to the male; sides similar but paler, sometimes almost white, in others cream or cream tinged with bluish, and so through intermediate stages to entirely pale blue; the brown spot on the second lateral suture scarcely evident in some specimens.

Abdominal segments 1 to 6 similar to the male, but the apical black is confined to a narrow apical ring; 7 and 8 orange brown, slightly darker along the median line, the darker color obscure, indefinite and narrow; 7 with a narrow interrupted bluish basal ring and a trace of an apical black ring; 9 and 10 light yellow brown, 10 sometimes with bluish traces. Pattern of abdomen often obscure; 7 to 10 often a uniform dull yellowish brown; in one specimen the dorsum of 6 is light metallic green instead of the usual brown. Seen from the side similar to the male, usually obscure especially the last four or five segments; in several cases 9 has a large distinct dark area; in other cases 9 and



10 are distinctly paler, light yellow, in the lower half; usually 7 to 10 are obscure brown or dull orange. Ventral suture as in the male. No trace of a vulvar spine.

Legs cream colored or very light brown, similar to the male, but the femoral stripes wanting or faintly represented on the last femora only. Wings similar to the male.

British Guiana: Georgetown, January 25 and 26, and February 18, 1912, 19 ♂, and 7 ♀; Wismar, January 30, 1912, 1 ♂; *types*, a ♂ and ♀, January 26, in my collection.

In the Botanic Gardens at Georgetown in January, 1912, many of the pools were dried up and all canals and pools were at a very low water stage. Just a short distance from one of the main drives was a pool grown up with *Nelumbo*, into which pool a very small stream of water trickled. *Demararum* was along this thread of water for a short distance back from the pool, and about the pool near the mouth of the stream. Their flight was rather slow and heavy.

Specimens of this species were sent to Dr. Calvert and Dr. Ris for examination. Both regard it as undescribed. The following species, other than those here figured have been referred to *Leptagrion*: *inca* Selys, *inornatum* Selys, *obsoletum* Selys, *perlongum* Calvert, *rufum* Selys. *Inca* is known from an imperfect ♂ and 2 ♀; *demararum* is distinct from it, among other characters, by the rear of the head entirely pale and by the absence of a post-humeral black band. *Inornatum* is known from a single ♀; *demararum* is distinct from it, among other characters, by the very different stigma, by having the labrum and rhinarium not shining black, and by the thorax having a middorsal dark stripe. *Obsoletum* is known from a single ♂ and ♀; *demararum* is distinct from it, among other characters, by the color of the vertex, and of segments 7-10 of the ♂, and by the form of the ♂ appendages. *Perlongum* is known from a single ♂, supposedly close to *porrectum*, and having the abdomen 64 mm. in length, more than twice the length of *demararum*. *Rufum* is known from a single ♂ lacking the last 4 abdominal segments; *demararum* is distinct from it, among other characters, by the almost totally red coloration of head, thorax and abdomen of *rufum*.

**Aeolagrion dorsale** Burmeister. (Type of the genus). (Plate XVII, figs. 5 and 6; Plate XVIII, fig. 21).

Abdomen ♂ 27-30, average 28.3, ♀ 27-28; hind wing ♂ 17-19, average 17.7, ♀ 18-19.

♂.—Genae light bluish green, very pale, to bright bluish green; labrum brown to shining black; rhinarium and nasus bluish green, light and bright in older specimens, the nasus with a little dark or black at base; frons in front bluish green below on the lateral margins, remainder orange or rust brown to dark reddish brown and, in extreme cases, black. Head above metallic green to black, a short orange line from the lateral ocellus outward and forward toward the antenna, reaching a little more than half the distance. Rear of head upper half black, lower half very pale bluish to pale greenish.

Prothorax with the front lobe blue, broadly black posteriorly but not reaching the lateral margins; middle lobe blue, black above, narrow anteriorly, widening rapidly posteriorly where it occupies the full width of the lobe; hind lobe black dorsally with a continuation of the middorsal thoracic stripe, sides blue. Hind lobe laterally winged, the median portion greatly developed in a dorsally directed triangular plate, more than twice as high as the wings, the apex acute, the sides convex. Propleuron pale, bluish above to entirely blue. In very mature specimens the blue of the prothorax is more or less overlaid with silvery white.

Dorsum of thorax its entire length broadly metallic green to black, the stripe gradually narrowed at either end, bordered on either side by a blue stripe, scarcely half as wide, which reaches the humeral suture; a narrow brown or black posthumeral stripe which is continued across the mesinfraepisternum and which shades out into the rust red which occupies practically all of the mesepimeron; with age the mesepimeron darkens till, in extreme cases, it is entirely black except an anterior superior blue spot and a small posterior inferior area which remains rust red; metepisternum and metepimeron very light blue to bright blue, sometimes an indistinct dark area on the metepisternum along the second lateral suture. Beneath and coxae white to pale bluish; coxae externally in older specimens bright to dark blue. The antehumeral blue stripe is sometimes more or less overlaid with silvery white and the same is true to a lesser extent of the blue of the sides of the thorax.

Abdomen from above black, slightly paler on 3 and 4 in younger individuals; a narrow apical blue ring on 1, and narrow interrupted basal blue rings on 3 to 7, yellowish on 7, and on all segments in younger individuals; 8 and 9 bright blue, 10 black. Seen from the side, 1 and 2 blue with a narrow dark apical border; 3 to 6, or 3 to 7 in younger specimens, with sides below yellowish or greenish, connected with the basal rings, and slightly widening subapically, the black of the



dorsum completely encircling the apex of each segment; in older specimens 7 seems entirely black; 8 to 9 blue; 10 black, slightly or distinctly paler below: Appendages black, in younger specimens the inferior dilatation of the superiors and the base of the inferiors brown; the inner surface of the superiors with a large shallow excavation which is densely clothed with long, soft, very light dull yellow hair. Ventral suture yellowish or brown, darker on 6 and 7.

Legs dull pale yellow or light brown; posterior external face and apex of femora black; tibiae with a very narrow dark line on the anterior external face, sometimes wanting.

Wings rarely clear, usually slightly tinged with brown; stigma dark brown to black, encircled or not within the enclosing veins with pale, rarely covering one cell, usually slightly less, shaped as in *demararum*. In a male from Cumuto, in both front wings, the anterior side of the quadrangle is distinctly longer than the proximal side.

♀—Genae pale, yellowish or bluish; labrum brown, sometimes somewhat darkened over much of its area; rhinarium and nasus dull bluish; frons in front as in the paler males. Head above as in the male, except that the frons anteriorly is edged with reddish brown, or, in a teneral specimen, is largely this color. Rear of head as in the male.

Prothorax in pattern similar to the male; front lobe slightly duller, rust red replacing black on the middle lobe, and brown replacing black on the hind lobe. Hind border with the lateral wings of the male greatly reduced, scarcely evident, passing directly into the high, almost semicircular middle part. Propleuron cream to light bluish.

Thorax similar to the male; the narrow posthumeral brown stripe wanting or indistinct; the mesepimeron not becoming black; the dark area on the metepisternum along the second lateral suture usually distinct and rust red in color, sometimes very distinct and occupying nearly one-half the sclerite. Beneath and coxae as in the male, but the coxae never showing more than a trace of bluish. Silvery white over blue areas never as conspicuous as in the male.

Abdomen seen from above similar to the male, except that 8 to 10 are black, very narrowly pale at apex. Seen from the side similar to the male, but the lower pale areas on 3 to 7 wider, of uniform width, not dilated subapically; 8 to 10 similar to the preceding segments, the lower pale area becoming progressively narrower posteriorly, and being continuous along the sides, reaching the apex of each segment. Ventral suture darker than in the male, largely dark brown to black on 3 to 6. Vulvar spine wanting.

Legs light yellow, a narrow line on the external angle and the apex of the femora, black.

Wings very slightly tinged with brownish; stigma light brown, pale-encircled within the enclosing veins, covering rarely one cell, usually very slightly less, shaped as in the male.

Dutch Guiana: Paramaribo, February 23, 1912, 49 ♂, 4 ♀.  
Trinidad: Cumuto, March 8 and 10, 1912, 4 ♂, 1 ♀.

Back of the rifle range at Paramaribo is a shallow ditch or mud-bedded stream which, on February 23, 1912, seemed entirely dry. However, I followed it for some distance and eventually discovered a few shallow pools of stagnant water. Near one of these pools and in the bed of the ditch lay a large log which for a short distance was a foot or more off the ground; dense grass grew about the log and thus a little room or cave was formed under the log, the log itself being the roof, the nearly dry mud the floor and the rank grass the sides. At one corner of this little room the grass was wanting, thus affording an open doorway. About this doorway and just within the little room no less than 50 *Aeolagrion dorsale* were taken. When I first discovered them possibly a dozen or twenty were in view, practically all of them well back under the log. At each stroke of the net, those not captured disappeared but in a moment they would be detected again, one here, one there, resting in the grass about the log. *Dorsale* is an inconspicuous species and is easily overlooked in grass. In adjoining woodland I caught two or three about the top of a large fallen tree. I have no notes and recall nothing of the Cumuto specimens which were taken at the little swamp where we took the large number of *Metaleptobasis* (Proc. U. S. Nat. Mus. Vol. 48, May, 1915, p. 601).

*Aeolagrion flammeum* Selys. (Plate XVII, figs. 13, 14; Pl. XVIII, 20).

Abdomen ♂ 32-35, average 33.2, ♀ 32; hind wing ♂ 21-22, ♀ 22-22.5.

♂.—Genae pale yellowish to pale bluish; labrum slaty blue to bright greenish blue; rhinarium slaty blue to light brown; nasus to ocelli dull orange or rust red. Head above black and dull orange; ocelli surrounded with black, except the median in front; on either side of the median is a short lateral black spur, not always distinct; from each lateral ocellus a black stripe runs forward and outward to meet a wide black area lying against the eye, and reaching inward to the level of the inner side of the second joint of the antenna; anteriorly it extends to in front of the antenna and posteriorly it is carried back over the rear of the head; it is often dark green in color and is always less intense black than the stripe from the lateral ocellus to the

eye. Occipital crest and adjoining area pale, this pale area running forward in a sharp point between the lateral ocelli. The pale area just in front of the stripe from the lateral ocellus to the eye, adjoining the lateral ocellus, is usually bright yellow, paler than the dull orange of other parts. Rear of head largely black, pale below and adjoining the foramen.

Prothorax orange red; the anterior border narrowly indistinctly brown, elsewhere slight, scarcely discernible traces of darker. Posterior border of hind lobe broad and high, rounded, medianly broadly emarginate. Propleuron similar in color to the pronotum, darker below.

Thorax above vivid rust red; mesepisternum with a longitudinal median stripe about one-third the width of the sclerite, which in dried material is scarcely evident or is indicated by a dull greenish or brownish stripe, which in life is a vivid light greenish blue, in striking contrast to the surrounding red. Sides paler rust red, especially below and behind; starting just behind the humeral suture and near its upper end, a broad stripe runs directly down across sclerites to end on the third coxae; this stripe is like the stripe on the mesepisternum, evanescent, and in dried material is variously indicated; in life it is a vivid greenish blue area, becoming yellowish on the metinfraepisternum, which appears to have been haphazardly placed on the insect by an artist who carelessly disregarded the boundaries of the sclerites; behind this stripe and parallel to it is a large pale yellowish area of indefinite extent which occupies the metepimeron, except its upper and lower ends, and extends above onto the metepisternum. Beneath and coxae cream-colored.

Abdomen light brown above becoming progressively darker from 1-6; 3-7 more or less distinctly narrowly pale at base; 3-5 black at apex; 3-6 with a trace of a longitudinal middorsal line, scarcely or not discernible on 3 and 4, plainer on 5 and 6; 6 black except at base as noted; 7 subbasally black for one-fifth to one-half its length, the black shading out posteriorly to yellow or orange; 8-10 yellow or orange with much scattered bright red pigment in dried material. Seen from the side 1 and 2 largely yellowish with some basal and apical blue or green traces, the posterior border of each narrowly brown; sides below of 3-6 pale yellow, narrowest and not always evident on 6; on each segment this pale color connected with the pale basal rings, but not reaching the apex, being terminated posteriorly by the apical black which encircles each segment; 7 broadly pale below the dorsal basal black, this pale shading out posteriorly into the pale area which occupies the entire apical portion of the segment; 8-10 entirely yellow or bright red. Superior appendages brown, inner and ventral surfaces more or less red; inferiors yellowish red at base, shading out into bright red, the extreme apex brown tipped. Ventral suture pale, about color of adjoining parts, in some cases darker on 6 and 7.

VENATIONAL CHARACTERS, EXPRESSED IN PERCENTAGES, OF SPECIES OF *Leptagrion* AND *Aeolagrion*, BASED ON THE FOLLOWING MATERIAL:  
*Leptagrion macrurum*, 2♂, *L. andromache*, 2♂, *Ae. dorsale*, 5♂, 5♀, *Ae. demarum*, 5♂, 5♀.

	<i>Leptagrion macrurum</i>	<i>Leptagrion andromache</i>	<i>Aeolagrion flammeum</i>	<i>Aeolagrion dorsale</i>	<i>Aeolagrion demarum</i>
Quadrilateral in front wing with anterior side equalling about one-half the proximal side	.....	.....	.....	male 30 female 10	male 30
about two-thirds—do.....	male 50	.....	male 90	female 50	male 60
anterior side very slightly shorter than proximal side.....	"	male 50	male 10	female 40	female 40
anterior side slightly longer—do.....	.....	"	female 100	male 10	male 10
Quadrilateral in hind wing with anterior side equalling about one and one-fourth the proximal side.....	male 50	.....	.....	female 40	female 60
about one and one-half—do.....	"	.....	male 10	.....	.....
about one and three-fourths—do.....	.....	male 100	male 80	male 20	male 90
about twice—do.....	.....	.....	male 10	female 100	female 80
Cubito-anal cross-vein in front wing distal to first antenodal about one-fourth the second antenodal costal space.....	male 50	.....	female 100	female 20	female 20
about one-third—do.....	"	.....	.....	male 20	.....
nearly or about one-half—do.....	.....	male 50	.....	male 40	.....
slightly more than one-half.....	.....	.....	male 60	female 60	.....
Cubito-anal cross-vein in hind wing distal to first antenodal about one-fourth the second antenodal costal space.....	.....	.....	female 60	male 90	.....
about one-third—do.....	male 50	.....	male 40	female 40	female 100
about one-half—do.....	"	male 50	.....	.....	male 10
more than one-half—do.....	.....	.....	female 100	.....	.....
about two-thirds—do.....	.....	.....	male 40	female 30	.....
A in front wing proximal to cubito-anal crossvein about one-half the length of the latter.....	male 50	.....	.....	male 40	male 40
slightly proximal to cubito-anal cross-vein.....	"	male 50	.....	female 50	female 70
.....	.....	.....	female 50	male 60	male 60
.....	.....	"	male 60	female 20	female 30
.....	.....	.....	female 50	.....	.....
.....	.....	.....	male 80	.....	.....
.....	.....	.....	male 40	.....	.....
.....	.....	.....	female 100	.....	.....
.....	.....	male 50	male 20	.....	female 20



Legs light yellow or light yellowish brown; external posterior surface of femora black, apex black or brown.

Wings clear to slightly brownish-tinged; stigma brown to reddish brown, encircled with pale within the enclosing veins, covering one cell or very slightly less, very slightly oblique, a brace vein present, the costal and posterior sides distinctly longer than the proximal and distal sides.

♀.—Similar to the male throughout except as noted, as brightly colored, at least in dried material; abdominal segments 7-10, seen from above, black, 10 with apex more or less red; seen from the sides 7-9 are pale below like the preceding segments, and 10 is largely pale with traces of red apically. Vulvar spine wanting.

British Guiana: Rockstone, February 12 and 14, 1912, 5 ♂, 2 ♀; Tumatumari, February 29, 1912, A. F. Porter, 1 ♂.

Three of the males taken at Rockstone were collected by my father and I know nothing of the circumstances as I was at Tumatumari at the time. But on February 14 we went together in the afternoon to the large island in the Essequibo opposite Rockstone. At this time the country was experiencing an unusual drought, the river was at a lower stage than many persons had ever before seen it, and we found the pools on the island dried up and dragonflies scarce. The four specimens of *flammeum* taken were found singly in the woods, in bushes or small trees, resting on the leaves at a height of 6 to 8 feet.

When the above description was prepared and when the manuscript of this paper was sent to Doctor Calvert, I regarded *flammeum* as not congeneric with the species grouped under *Acolagrion*. Doctor Calvert wrote me that he regarded my distinctions as very fine splitting; and later, in answer to my enquiry, Mr. Kennedy wrote me: "The penes of *flammeum* and *dorsale* are more alike than any other two species in the genus. There are slight differences but these are not generic unless there are good parallel characters in venation or elsewhere." I therefore follow the judgment of these two students in this paper. The key in this paper indicates the characters upon which I was basing my opinion on the generic distinctness of *flammeum*.



